

ENVIRONMENTAL HOT SPOT - LANDFILL FOR INDUSTRIAL WASTE "HIV-VELES" MINERALOGICAL, GEOCHEMICAL AND RADIOCHEMICAL RESEARCH

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ABSTRACT

The landfill for phosphorus gypsum, which is the remainder of the former production of fertilizers in the factory HIV-Veles, is located in the immediate vicinity of the road Veles-Gradsko (near the village of Zgropolci). The landfill is located about two kilometers from the factory itself in a valley where there are no permanent water courses. Approximately 3.5 million cubic meters of phosphorus gypsum have been put away in this landfill. From the aspect of the presence of a larger amount of gypsum, this landfill does not pose a serious threat to the environment, but from the aspect of increased concentrations of radionuclides in phosphor gypsum, it represents an ecological hot spot. From the preliminary investigations of the representation of radionuclides, it can be concluded that the activity of the isotopes from the array of ²³⁸U is increased (Table 1).

Table 1: Radiochemical analysis of waste gypsum from dump site

Isotope/Radioactivity	Units	Method	Laboratory sample No.	
			1440/16772	
			Result	Uncertainty
Specific activity of U ²³⁸	Bq/kg	IEC 1452	329.91	3.991
Specific activity of Ra ²²⁶	Bq/kg	IEC 1452	218.25	169.98
Specific activity of Pb ²¹⁰	Bq/kg	IEC 1452	256.89	2.526
Specific activity of Th ²³²	Bq/kg	IEC 1452	13.697	2.103
Specific activity of K ⁴⁰	Bq/kg	IEC 1452	N.D.	-
Specific activity of Cs ¹³⁷	Bq/kg	IEC 1452	N.D.	-
Specific α activity	Bq/kg	ISO 9696	544.0	15.9
Specific β activity	Bq/kg	ISO 9697	1160.0	27.2

Key words: hot spot, phosphorus gypsum, radionuclides